

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated in the following listing of all claims:

- 5 1. **(Currently Amended)** A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:
 - a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;
 - a switch controller for controlling the ON-time and the OFF-time; and
 - a soft-start circuit for modulating the ON-time to gradually increase during an initial period of a charging process;
 - a first current detector for detecting the primary winding current to generate a primary current detection signal;
 - a reference voltage generator controlled by the soft-start circuit to generate a soft-start reference voltage; and
 - a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.
2. **(Canceled)**
3. **(Original)** The capacitor charging circuit according to claim 1, further comprising:
 - 25 a second current detector for detecting a secondary winding current to generate a secondary current detection signal; and
 - a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the

switch controller.

4. **(Original)** The capacitor charging circuit according to claim 1, further comprising:
a minimum ON-time limiting unit for preventing the power switch from being turned
5 off before a minimum ON-time expires.

5. **(Original)** The capacitor charging circuit according to claim 4, wherein:
the minimum ON-time limiting unit outputs a minimum ON-time limiting signal to
the switch controller for determining the minimum ON-time.

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6. **(Original)** The capacitor charging circuit according to claim 4, wherein:
the minimum ON-time limiting unit is controlled by the soft-start circuit for
modulating the minimum ON-time to gradually increase during the initial period of the
charging process.

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7. **(Original)** The capacitor charging circuit according to claim 1, wherein:
a minimum OFF-time limiting unit for preventing the power switch from being
turned on before a minimum OFF-time expires.

20 8. **(Original)** The capacitor charging circuit according to claim 7, wherein:

the minimum OFF-time limiting unit outputs a minimum OFF-time limiting signal to
the switch controller for determining the minimum OFF-time.

25 9. **(Original)** The capacitor charging circuit according to claim 1, further comprising:
a maximum ON-time limiting unit for preventing the power switch from still
remaining ON after a maximum ON-time expires.

10. **(Original)** The capacitor charging circuit according to claim 9, wherein:

the maximum ON-time limiting unit outputs a maximum ON-time limiting signal to the switch controller for determining the maximum ON-time.

11. **(Currently Amended)** A capacitor charging circuit for controlling a transformer such 5 that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:

a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;

10 a switch controller for controlling the ON-time and the OFF-time; and

a minimum ON-time limiting unit for preventing the power switch from being turned off before a minimum ON-time expires;

a first current detector for detecting the primary winding current to generate a primary current detection signal;

15 a reference voltage generator for generating a soft-start reference voltage; and

a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.

20 12. **(Canceled)**

13. **(Currently Amended)** The capacitor charging circuit according to claim 12_11, wherein:

25 the minimum ON-time limiting unit outputs a minimum ON-time limiting signal to the first voltage comparator for determining the minimum ON-time.

14. **(Original)** The capacitor charging circuit according to claim 11, further comprising:

a second current detector for detecting a secondary winding current to generate a

secondary current detection signal; and

a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the switch controller.

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15. **(Currently Amended)** A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:

10 a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;

a switch controller for controlling the ON-time and the OFF-time; and

15 a minimum OFF-time limiting unit for preventing the power switch from being turned on before a minimum OFF-time expires;

20 a first current detector for detecting the primary winding current to generate a primary current detection signal;

a reference voltage generator for generating a soft-start reference voltage; and

25 a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.

16. **(Canceled)**

17. **(Original)** The capacitor charging circuit according to claim 15, wherein:

25 a second current detector for detecting a secondary winding current to generate a secondary current detection signal; and

30 a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the

switch controller.

18. (Original) The capacitor charging circuit according to claim 17, wherein:

the minimum OFF-time limiting unit outputs a minimum OFF-time limiting signal to
5 the second voltage comparator for determining the minimum OFF-time.

19. (Currently Amended) A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:

10 a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;

a switch controller for controlling the ON-time and the OFF-time; and

15 a maximum ON-time limiting unit for preventing the power switch from still remaining ON after a maximum ON-time expires;

a first current detector for detecting the primary winding current to generate a primary current detection signal;

a reference voltage generator for generating a soft-start reference voltage; and

20 a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.

20. (Currently Amended) The capacitor charging circuit according to claim 19, further comprising:

25 ~~a first current detector for detecting the primary winding current to generate a primary current detection signal;~~

~~a reference voltage generator for generating a soft-start reference voltage;~~

~~a first voltage comparator for comparing the primary current detection signal with~~

~~the soft start reference voltage so as to output an ON-time ending signal to the switch controller;~~

a second current detector for detecting a secondary winding current to generate a secondary current detection signal; and

5 a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the switch controller.